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 TI Calcium sodium silicate glass compositions, hollow  
 microspheres obtained from the glass, and process for their  
 manufacture  
 IN Garnier, Patrick; Abriou, Daniel  
 PA Saint-Gobain Vitrage International S. A., Fr.  
 SO Fr. Demande, 17 pp.  
 CODEN: FRXXBL  
 DT Patent  
 LA French  
 IC ICM C03C003-089  
 CC 57-1 (Ceramics)  
 FAN.CNT 1

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PRAI FR 1990-14135		19901114		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
FR 2671072	ICM	C03C003-089
	IPCI	C03C003-089 [ICM,5]; C03C003-076 [ICM,5,C*]
	IPCR	C03B0019-00 [I,C*]; C03B0019-10 [I,A]; C03C003-076 [I,C*]; C03C003-093 [I,A]; C03C0011-00 [I,C*]; C03C0011-00 [I,A]
	ECLA	C03B019/10C2; C03C003/093; C03C0011/00B

AB The glass contains SiO<sub>2</sub> 55-80, B<sub>2</sub>O<sub>3</sub> 5-15, Al<sub>2</sub>O<sub>3</sub> 3-8, Li<sub>2</sub>O 0-2, K<sub>2</sub>O 0-2, Na<sub>2</sub>O 11-16 (Li<sub>2</sub>O + K<sub>2</sub>O + Na<sub>2</sub>O 11-18), MgO 0-1, CaO 0.1-3, BaO 0-6, ZnO 1-5 (MgO + CaO + BaO + ZnO 3-14), fluoride 0-5, and sulfate 0.3-0.8 weight%. The lightwt. hollow microspheres have d. <0.7 g/cm<sup>3</sup>, and are obtained by thermal expansion of particles of the soda-lime glass. The process comprises dispersing the particles in a gas stream, passing the loaded gas stream through flame at  $\geq 1500^{\circ}$  to expand the particles and form the hollow microspheres, and quenching the hollow microspheres. The glass is obtained by elec. melting the composition using Mo electrodes. The hollow microspheres are resistant to elevated pressures, and are suitable for use in synthetic resins and concrete.

ST soda lime glass hollow microsphere; calcium sodium silicate glass microsphere  
 IT Glass, oxide